JOINT SERVICES ELECTRONICS PROGRAM
REPORTS DISTRIBUTION LIST

Department of Defense

Assistant Director (Research)
Office of Director of Defense, Research & Engineering
The Pentagon, Rm 3C128
Washington, D.C. 20301

Technical Library
DDR&E
Room 3C-122, The Pentagon
Washington, D.C. 20301

Director For Materials Sciences
Advanced Research Projects Agency
1400 Wilson Boulevard
Arlington, Virginia 22209

Chief, R&D Division (340)
Defense Communications Agency
Washington, D.C. 20305

Defense Documentation Center
Attn: DDC-TCA
Cameron Station
Alexandria, Virginia 22314

Dr. Alvin D. Schnitzler
Institute For Defense Analyses
Science and Technology Division
400 Army-Navy Drive
Arlington, Virginia 22202

LTC Norman D. Jorstad
Weapons Systems Evaluation Group
400 Army-Navy Drive
Arlington, Virginia 22202

Central Intelligence Agency
Attn: CRS/ADD/PUBLICATIONS
Washington, D.C. 20505

Department of the Air Force

Hq USAF (AF/RDPE)
Washington, D.C. 20330

Hq USAF/RDPS
Washington, D.C. 20330

Hq USAF (RDSD)
The Pentagon
Washington, D.C. 20330

Colonel E. P. Gaines, Jr.
ESD (MCD)
L. G. Hanscom Field
Bedford, Massachusetts 01730

Dr L. A. Wood, Director
Electronic and Solid State Sciences
Air Force Office of Scientific Research
1400 Wilson Boulevard
Arlington, Virginia 22209

Dr Harvey E. Savely, Director
Life Sciences
Air Force Office of Scientific Research
1400 Wilson Boulevard
Arlington, Virginia 22209

AFSC (CCJ/Mr I. R. Mirman)
Andrews Air Force Base,
Washington, D.C. 20331

Rome Air Development Center
Attn: Documents Library (TDLD)
Griffiss Air Force Base, New York 13440

Mr H. E. Webb, Jr. (ISCP)
Rome Air Development Center
Griffiss Air Force Base, New York 13440

Dr L. M. Hollingsworth
AFCRL (CA)
L. G. Hanscom Field
Bedford, Massachusetts 01730

Hq ESD (TRI)
L. G. Hanscom Field
Bedford, Massachusetts 01730

Professor R. E. Fontana, Head
Dept of Electrical Engineering
Air Force Institute of Technology
Wright-Patterson Air Force Base,
Ohio 45433
Dr H. V. Noble, AFAL/TE  
Chief, Electronics Technology Division  
Air Force Avionics Laboratory  
Wright-Patterson Air Force Base,  
Ohio 45433

Director  
Air Force Avionics Laboratory  
Wright-Patterson Air Force Base,  
Ohio 45433

AFAL/TEA (Mr R. D. Larson)  
Wright-Patterson Air Force Base,  
Ohio 45433

Mr Jules I. Wittebort  
Chief, Electronics Branch  
Manufacturing Technology Division  
AFAL/LTE  
Wright-Patterson Air Force Base,  
Ohio 45433

Academy Library (DFSLB)  
USAF Academy, Colorado 80840

Major Richard J. Gowen  
Tenure Associate Professor  
Dept of Electrical Engineering  
USAF Academy, Colorado 80840

AFETR Technical Library  
(MU-135)  
Patrick Air Force Base, Florida 32925

ADTC (SSLT)  
Eglin Air Force Base, Florida 32542

Hq AMD (RDR/Lt Col Godden)  
Brooks Air Force Base, Texas 78235

USAFSAM (RAT)  
Brooks Air Force Base, Texas 78235

Commanding General  
Attn: STEWS-AD-L, Technical Library  
White Sands Missile Range,  
New Mexico 88002

European Office of Aerospace Research  
Technical Information Office  
Box 14, FPO New York 09510

VLSA Seismological Center  
312 Montgomery Street  
Alexandria, Virginia 22314

Capt C. E. Baum  
AFWL (SRE)  
Kirtland Air Force Base,  
New Mexico 87117

Biomedical Engineering Branch (SCB)  
USAF School of Aerospace Medicine (AFSC)  
Department of the Air Force  
Brooks Air Force Base, Texas 78235

Department of the Army

Director  
Physical & Engineering Sciences Division  
3045 Columbia Pike  
Arlington, Virginia 22204

Commanding General  
U.S. Army Security Agency  
Attn: IARD-T  
Arlington Hall Station  
Arlington, Virginia 22212

Commanding General  
U.S. Army Materiel Command  
Attn: AMCRD-TP (Dr Zarwyn)  
Washington, D.C. 20315

Director  
U.S. Army Advanced Materiel  
Concepts Agency  
2461 Eisenhower Avenue  
Alexandria, Virginia 22314
JOINT SERVICES REPORTS DISTRIBUTION LIST (continued)

Commanding General
USACDC Institute of Land Combat
Attn: Technical Library, Rm 636
2461 Eisenhower Avenue
Alexandria, Virginia 22314

Mr H. T. Darracott (AMXAM-FT)
U.S. Army Advanced Materiel Concepts Agency
2461 Eisenhower Avenue
Alexandria, Virginia 22314

Dr Berthold Altmann (AMXDO-TI)
Harry Diamond Laboratories
Connecticut Avenue and Van Ness Street N. W.
Washington, D.C. 20438

Commanding Officer (AMXRD-BAD)
U.S. Army Ballistic Research Laboratory
Aberdeen Proving Ground
Aberdeen, Maryland 21005

Mr Herman Robl
Deputy Chief Scientist
U.S. Army Research Office (Durham)
Box CM, Duke Station
Durham, North Carolina 27706

Richard O. Ulsh (CRDARD-IP)
U.S. Army Research Office (Durham)
Box CM, Duke Station
Durham, North Carolina 27706

Technical Director (SMUFA-A2000-107-1)
Frankford Arsenal
Philadelphia, Pennsylvania 19137

Redstone Scientific Information Center
Attn: Chief, Document Section
U.S. Army Missile Command
Redstone Arsenal, Alabama 35809

Commanding General
U.S. Army Missile Command
Attn: AMSMI-RR
Redstone Arsenal, Alabama 35809

Commanding General
U.S. Army Strategic Communications Command
Attn: SCC-ATS (Mr Peter B. Pichetto)
Fort Huachuca, Arizona 85613

Dr Homer F. Priest
Chief, Materials Sciences Division, Bldg 292
Army Materials & Mechanics Research Center
Watertown, Massachusetts 02172

Commandant
U.S. Army Air Defense School
Attn: Missile Science Division, C&S Dept
P. O. Box 9390
Fort Bliss, Texas 79916

Commandant
U.S. Army Command and General Staff College
Attn: Acquisitions, Lib Div
Fort Leavenworth, Kansas 66027

Dr Hans K. Ziegler
Army Member TAC/JSEP (AMSEL-XL-D)
U.S. Army Electronics Command
Fort Monmouth, New Jersey 07703

Mr I. A. Balton, AMSSEL-XL-D
Executive Secretary, TAC/JSEP
U.S. Army Electronics Command
Fort Monmouth, New Jersey 07703

Director (NV-D)
Night Vision Laboratory, USAECOM
Fort Belvoir, Virginia 22060

Commanding Officer
Atmospheric Sciences Laboratory
U.S. Army Electronics Command
White Sands Missile Range, New Mexico 88002

Atmospheric Sciences Laboratory
U.S. Army Electronics Command
Attn: AMSSEL-BL-DD (Mr Marvin Diamond)
White Sands Missile Range, New Mexico 88002
<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Department</th>
<th>Contact Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief</td>
<td>Missile Electronic Warfare Tech Area (AMSEL-WL-M) Electronic Warfare Laboratory, USAECOM White Sands Missile Range, New Mexico 88002</td>
<td>Department of the Navy Director, Electronics Programs Attn: Code 427 Office of Naval Research 800 North Quincy Street Arlington, Virginia 22217</td>
<td></td>
</tr>
<tr>
<td>Project Manager NAVCON</td>
<td>Project Manager NAVCON Attn: AMCPM-NC, Bldg 439 (H. H. Bahr) Fort Monmouth, New Jersey 07703</td>
<td>Mr Gordon D. Goldstein, Code 437 Information Systems Program Office of Naval Research 800 North Quincy Street Arlington, Virginia 22217</td>
<td></td>
</tr>
<tr>
<td>Mr A. D. Bedrosian</td>
<td>Mr A. D. Bedrosian, Rm 26-131 U.S. Army Scientific Liaison Office Massachusetts Institute of Technology 77 Massachusetts Avenue Cambridge, Massachusetts 02139</td>
<td>Commander Naval Security Group Command Naval Security Group Headquarters Attn: Technical Library (G43) 3801 Nebraska Avenue, N. W. Washington, D. C. 20390</td>
<td></td>
</tr>
<tr>
<td>Commanding General</td>
<td>Commanding General U.S. Army Electronics Command Attn: AMSEL-RD-O (Dr W. S. McAfee) GG-DD XL-D XL-DT XL-G (Dr S. Kronenberg) XL-H (Dr R. G. Buser) BL-FM-P CT-D CT-R CT-S CT-L CT-O CT-I CT-A NL-D (Dr H. Bennett) NL-A NL-C NL-P NL-P-2 NL-R NL-S KL-D KL-I KL-E KL-S KL-SM KL-T VL-D VL-F WL-D</td>
<td>Director Naval Research Laboratory Attn: Code 5200 Mr A. Brodzinsky, Supt, Electronics Div</td>
<td></td>
</tr>
<tr>
<td>Mr A. Brodzinsky, Supt, Electronics Div</td>
<td>Mr A. Brodzinsky, Supt, Electronics Div</td>
<td>Commander Naval Security Group Command Naval Security Group Headquarters Attn: Technical Library (G43) 3801 Nebraska Avenue, N. W. Washington, D. C. 20390</td>
<td></td>
</tr>
<tr>
<td>Director</td>
<td>Director Naval Research Laboratory Attn: Dr H. Rabin, Code 7000 Washington, D. C. 20390</td>
<td>Code 8050 Maury Center Library Naval Research Laboratory Washington, D. C. 20390</td>
<td></td>
</tr>
<tr>
<td>Naval Research Laboratory</td>
<td>Naval Research Laboratory Attn: Dr H. Rabin, Code 7000 Washington, D. C. 20390</td>
<td>Dr G. M. R. Winkler Director, Time Service Division U.S. Naval Observatory Washington, D. C. 20390</td>
<td></td>
</tr>
<tr>
<td>U. S. Naval Weapons Laboratory Dahlgren, Virginia 22448</td>
<td>U. S. Naval Weapons Laboratory Dahlgren, Virginia 22448</td>
<td>U. S. Naval Weapons Laboratory Dahlgren, Virginia 22448</td>
<td></td>
</tr>
<tr>
<td>Director</td>
<td>Director Naval Research Laboratory Attn: Dr H. Rabin, Code 7000 Washington, D. C. 20390</td>
<td>Code 8050 Maury Center Library Naval Research Laboratory Washington, D. C. 20390</td>
<td></td>
</tr>
<tr>
<td>Naval Research Laboratory</td>
<td>Naval Research Laboratory Attn: Dr H. Rabin, Code 7000 Washington, D. C. 20390</td>
<td>Dr G. M. R. Winkler Director, Time Service Division U.S. Naval Observatory Washington, D. C. 20390</td>
<td></td>
</tr>
<tr>
<td>U. S. Naval Weapons Laboratory Dahlgren, Virginia 22448</td>
<td>U. S. Naval Weapons Laboratory Dahlgren, Virginia 22448</td>
<td>U. S. Naval Weapons Laboratory Dahlgren, Virginia 22448</td>
<td></td>
</tr>
<tr>
<td>Commanding Officer</td>
<td>Naval Avionics Facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Officer in Charge, New London Lab.</td>
<td>Naval Underwater Systems Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attn: Code 0311, Rm 7W12, NC #1</td>
<td>Attn: D/035 Technical Library</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of the Navy</td>
<td>Indianapolis, Indiana 46241</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washington, D.C. 20360</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commander</th>
<th>U.S. Naval Ordnance Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attn: Librarian</td>
<td>White Oak, Maryland 20910</td>
</tr>
<tr>
<td>Director</td>
<td></td>
</tr>
<tr>
<td>Office of Naval Research</td>
<td></td>
</tr>
<tr>
<td>Boston Branch</td>
<td></td>
</tr>
<tr>
<td>495 Summer Street</td>
<td></td>
</tr>
<tr>
<td>Boston, Massachusetts 02210</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commander (ADL)</th>
<th>Naval Air Development Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attn: NADC Library</td>
<td>Johnsville, Warminster, Pennsylvania, 18974</td>
</tr>
<tr>
<td>Commanding Officer</td>
<td></td>
</tr>
<tr>
<td>Naval Missile Center</td>
<td></td>
</tr>
<tr>
<td>Attn: 5632.2, Technical Library</td>
<td>Point Mugu, California 93042</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>W. A. Eberspacher, Associate Head</th>
<th>Systems Integration Division, Code 5340A</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Naval Missile Center</td>
<td></td>
</tr>
<tr>
<td>Point Mugu, California 93041</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Officer in Charge, New London Lab.</th>
<th>U.S. Postal Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naval Underwater Systems Center</td>
<td>Library – Room 6012</td>
</tr>
<tr>
<td>Attn: Technical Library</td>
<td>12th &amp; Pennsylvania Ave., N. W.</td>
</tr>
</tbody>
</table>
## JOINT SERVICES REPORTS DISTRIBUTION LIST (continued)

### Non-Government Agencies

<table>
<thead>
<tr>
<th>Director</th>
<th>Institution</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Jerome Fox</td>
<td>Research Coordinator</td>
<td>Polytechnic Institute of Brooklyn, 333 Jay Street, Brooklyn, New York 11201</td>
</tr>
<tr>
<td>Dr Jerome D. Murphy</td>
<td>Research Laboratory of Electronics</td>
<td>Massachusetts Institute of Technology, Cambridge, Massachusetts 02139</td>
</tr>
<tr>
<td>Dr John C. Hancock</td>
<td>Columbia Radiation Laboratory</td>
<td>Columbia University, 538 West 120th Street, New York, New York 10027</td>
</tr>
<tr>
<td>Dr G. J. Murphy</td>
<td>Coordinate Science Laboratory</td>
<td>University of Illinois, Urbana, Illinois 61801</td>
</tr>
<tr>
<td>Mr Jerome Fox</td>
<td>Stanford Electronics Laboratory</td>
<td>Stanford University, Stanford, California 94305</td>
</tr>
<tr>
<td>Dr John C. Hancock</td>
<td>Microwave Laboratory</td>
<td>Stanford University, Stanford, California 94305</td>
</tr>
<tr>
<td>Dr G. J. Murphy</td>
<td>Electronics Research Laboratory</td>
<td>University of California, Berkeley, California 94720</td>
</tr>
<tr>
<td>Dr John C. Hancock</td>
<td>Electronics Sciences Laboratory</td>
<td>University of Southern California, Los Angeles, California 90007</td>
</tr>
<tr>
<td>Dr G. J. Murphy</td>
<td>Electronics Research Center</td>
<td>The University of Texas at Austin, Engineering-Science Bldg 110, Austin, Texas 78712</td>
</tr>
<tr>
<td>Dr G. J. Murphy</td>
<td>Division of Engineering and Applied Physics</td>
<td>Harvard University, Cambridge, Massachusetts 02138</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Director</th>
<th>Institution</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Jerome Fox</td>
<td>Aerospace Corporation</td>
<td>P. O. Box 95085, Los Angeles, California 90045</td>
</tr>
<tr>
<td>Dr John C. Hancock</td>
<td>The University of Arizona</td>
<td>Department of Electrical Engineering, Tucson, Arizona 85721</td>
</tr>
<tr>
<td>Dr G. J. Murphy</td>
<td>Engineering and Mathematical Sciences Library</td>
<td>University of California at Los Angeles, 405 Hilgred Avenue, Los Angeles, California 90024</td>
</tr>
<tr>
<td>Dr John C. Hancock</td>
<td>Sciences-Engineering Library</td>
<td>University of California, Santa Barbara, California 93106</td>
</tr>
<tr>
<td>Dr G. J. Murphy</td>
<td>Aeronautics Library</td>
<td>Graduate Aeronautical Laboratories, California Institute of Technology, 1201 E. California Boulevard, Pasadena, California 91109</td>
</tr>
<tr>
<td>Dr John C. Hancock</td>
<td>Hunt Library</td>
<td>Carnegie-Mellon University, Schenley Park, Pittsburgh, Pennsylvania 15213</td>
</tr>
</tbody>
</table>
JOINT SERVICES REPORTS DISTRIBUTION LIST (continued)

Dr A. G. Jordan  
Head of Dept of Electrical Engineering  
Carnegie-Mellon University  
Pittsburg, Pennsylvania 15213

Case Western Reserve University  
Engineering Division  
University Circle  
Cleveland, Ohio 44106

Hollander Associates  
Attn: Librarian  
P. O. Box 2276  
Fullerton, California 92633

Walter H. Veazie, Head  
Electronic Properties Information Center  
Mail Station E-148  
Hughes Aircraft Company  
Culver City, California 90230

Illinois Institute of Technology  
Department of Electrical Engineering  
Chicago, Illinois 60616

Government Documents Department  
University of Iowa Libraries  
Iowa City, Iowa 52240

The Johns Hopkins University  
Applied Physics Laboratory  
Attn: Document Librarian  
8621 Georgia Avenue  
Silver Spring, Maryland 20910

Lehigh University  
Department of Electrical Engineering  
Bethlehem, Pennsylvania 18015

Mr E. K. Peterson  
Lenkurt Electric Co. Inc.  
1105 Country Road  
San Carlos, California 94070

MIT Lincoln Laboratory  
Attn: Library A-082  
P. O. Box 73  
Lexington, Massachusetts 02173

Miss R. Joyce Harman  
Project MAC, Room 810  
545 Main Street  
Cambridge, Massachusetts 02139

Professor R. H. Rediker  
Electrical Engineering, Professor  
Massachusetts Institute of Technology  
Building 13-3050  
Cambridge, Massachusetts 02139

Professor Joseph E. Rowe  
Chairman, Dept of Electrical Engineering  
The University of Michigan  
Ann Arbor, Michigan 48104

New York University  
Engineering Library  
Bronx, New York 10453

Professor James A. Cadzow  
Department of Electrical Engineering  
State University of New York at Buffalo  
Buffalo, New York 14214

Department of Electrical Engineering  
Clipping Laboratory  
Ohio University  
Athens, Ohio 45701

Raytheon Company  
Research Division Library  
28 Seyon Street  
Waltham, Massachusetts 02154

Rice University  
Department of Electrical Engineering  
Houston, Texas 77001

Dr Leo Young, Program Manager  
Stanford Research Institute  
Menlo Park, California 94025

GTE Waltham Research Lab Library  
Attn: Documents Librarian  
Esther McLaughlin  
40 Sylvan Road  
Waltham, Massachusetts 02154

Dr W. R. LePage, Chairman  
Department of Electrical Engineering  
Syracuse University  
Syracuse, New York 13210

Dr F. R. Charvat  
Union Carbide Corporation  
Materials Systems Division  
Crystal Products Department  
8888 Balboa Avenue  
P. O. Box 23017  
San Diego, California 92123
JOINT SERVICES REPORTS DISTRIBUTION LIST (continued)

Utah State University
Department of Electrical Engineering
Logan, Utah 84321

Research Laboratories for the
Engineering Sciences
School of Engineering and Applied Science
University of Virginia
Charlottesville, Virginia 22903

Yale University
Engineering and Applied Science Library
15 Prospect Street
New Haven, Connecticut 06520
This report, the hundred and third in a series of quarterly progress reports issued by the Research Laboratory of Electronics of the Massachusetts Institute of Technology, contains a review of the research activities of the Laboratory for the three-month period ending August 31, 1971. Since this is a report on work in progress, some of the results may not be final.
<table>
<thead>
<tr>
<th>KEY WORDS</th>
<th>LINK A</th>
<th>LINK B</th>
<th>LINK C</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROLE WT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Physics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plasma Dynamics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication Sciences and Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>